IN THE DRAWINGS

Please approve the changes in red to attached new Fig. 1.

REMARKS

The drawings were objected to. Claim 1 was rejected under 35 U.S.C. 112, second paragraph. Claims 1 to 6, 8, 9 and 11 to 19 were rejected under 35 U.S.C. 103.

Proposed changes to Fig. 1 have been submitted. Claim 1 has been amended.

Reconsideration of the application as amended is respectfully requested.

Objections to the Drawings

Proposed changes to Fig. 1 are submitted herewith, identifying each block with a label. If approved, applicants will submit a formal drawing incorporating the changes. Approval of the changes and withdrawal of the objection is respectfully requested.

35 U.S.C. 112

Claim 1 has been amended to remove the language concerning the images not being resolved with respect to distance. As clear from the specification at paragraph [0012] and claim 15, for example, in a first step of the invention the images are identified within a two-dimensional camera image using a first classifier, independent of resolution with respect to distance.

It is respectfully submitted that claim 1 is now clear and definite and withdrawal of the rejection to claim 1 is respectfully requested.

35 U.S.C. 103

Claims 1 to 6, 8, 9 and 11 to 19 were rejected under 35 U.S.C. 103 as being unpatentable over Hayashi in view of Brady.

Hayashi discloses an intelligent braking system with a distance radar 2, a CCD camera 4, and an ECU 50. A preceding vehicle is recognized based on information received from the laser

radar and the CCD camera. The speed of the preceding vehicle is calculated based on the distance information to determine if the preceding vehicle is moving nearer or further away to the vehicle with the intelligent braking system. Hayashi, col. 4, lines 21 to 37.

Brady discloses a method and apparatus for machine vision classification and tracking using edgel detection. A video camera sends real-time video images to a centralized location. A region selection module 46 selects potential regions of interest, called candidate regions, for classification. The candidate regions are scanned to determine the presence of vehicles. See Brady at col. 7, lines 35 to 58. If a vehicle is recognized, it may be classified into a vehicle class by a separate module 52. See Brady, col. 9, line 50 to col. 10, line 5.

Only after the vehicle is identified and classified, is the vehicle is tracked, solely using the images. See Fig. 3, and column 10, line 10 et seq. of Brady. And only then may vehicle velocity information calculated. See col. 15, line 22, et seq. of Brady.

Claim 1 of the present invention recites a three step process including:

identifying regions within a two-dimensional camera image using a classifier designed for detecting road users and obstacles;

marking and ranging, in a subsequent step, the identified regions using a distance-measuring sensor with respect to their distance from the observer; and

subsequently type classifying the identified regions using a type classifier.

As recited in claim 1, first the regions are identified using a first classifier. Only then are the identified regions marked and ranged with a sensor. And as a last step, after both the first classification and the marking and ranging, the identified regions are type classified. Thus, the type classifying occurs only after the marking and ranging, which permits the distance information to be used in the type classification, if desired.

Hayashi merely discloses using a CCD image information and distance information together to determine if a vehicle is approaching, but does not disclose any details of this determination, and does not disclose type classification.

Brady does not disclose type classifying identified regions after a marking and ranging step. In fact, Brady specifically teaches away from tracking a vehicle prior to type classification, as is claimed in claim 1. Brady desires vehicle tracking only after a classification, as specifically

stated at column 10, line 10 et seq. of Brady. And Brady desires to perform such tracking without distance measurement using a sensor. See col. 2, line 62 et seq. and col. 3, line 57 to 60 of Brady.

It is thus respectfully submitted that one of skill in the art would not have combined the Hayashi and Brady reference to provide "marking and ranging, in a subsequent step, the identified regions using a distance-measuring sensor with respect to their distance from the observer" and "subsequently type classifying the identified regions using a type classifier." As claimed in claim 1, as neither Brady nor Hayashi shows this feature, and Brady specifically teaches away from type classification after tracking.

Withdrawal of the rejection to claim 1 and its dependent claims 2 to 11.

Furthermore with respect to claim 4, the hyperpermutation network is highly advantageous for the first identifying step, as discussed clearly in the specification at paragraph [0015]. Neither Brady nor Hayashi shows such a feature. Withdrawal of the rejection to claim 4 is respectfully requested for this reason as well.

Claim 15 of the present invention recites a device including a distance-measuring sensor unit; a mono-image camera coupled to the distance-measuring sensor unit; a first classifying unit interposed between the sensor unit and the camera; and a second classifying unit downstream from the sensor unit and the camera.

Thus, the first classifying unit is interposed between the camera and the sensor unit, and the second is located downstream from the sensor unit and camera. Thus the first classifying unit can receive data solely from the camera and output it to the sensor unit, and the second classifying unit can receive data from both the camera and the sensor unit.

Hayashi does not disclose a first classifying unit interposed between the distance sensor unit and the camera, a second classifying unit downstream from the sensor unit and the camera, but rather discloses a single control unit receiving inputs from both the laser radar 3 and the CCD 4. While the outstanding office action states that it would have been obvious to provide two classifying units as taught by Brady, the limitations of claim 15 require more than merely two classifying units, they also recite specific positioning of the two units. Brady does not teach or disclose placing the first classifying unit in between the distance sensor and the camera or the

second classifying unit downstream from a sensor unit and a camera. In fact Brady teaches that the first and second classifications should occur in series, and thus teaches away from placing the two sensors in different locations as claimed in claim 15. In addition, it is respectfully submitted that Brady teaches away from using a sensor altogether, and thus one of skill in the art would not have incorporated the two sensors of Brady into the Hayashi device.

Withdrawal of the rejection to claim 15 and its dependent claims 16 to 19 is respectfully requested.

With further respect to claim 16, claim 16 further recites a selection unit, which neither Hayashi nor Brady discloses as recited in claim 16. Withdrawal of the rejection to claim 16 is requested for this reason as well.

SUPPLEMENTAL IDS

A supplemental IDS is submitted herewith to cite art cited in related British Patent No. 2 368 118 B, a copy of which is also submitted herewith. The British Patent issued over the cited art.

CONCLUSION

It is respectfully submitted that the present application is in condition for allowance and applicants respectfully request such action.

Respectfully submitted,

DAVIDSON, DAVIDSON & KAPPEL, LLC

By [signature]
William C. Gehris
Reg. No. 38,156

Davidson, Davidson & Kappel, LLC
485 Seventh Avenue, 14th Floor
New York, New York 10018
(212) 736-1940

Re: Application of: **Joachim GLOGER, et al.**

Serial No.: 09/862,947

VERSION SHOWING CHANGES

IN THE CLAIMS

1. (Once amended) A method for detecting road users and obstacles as a function of camera images so as to determine their distance from an observer and to classify them, comprising the steps of:

identifying regions within a two-dimensional camera image [that is not resolved with respect to distance] using a classifier designed for detecting road users and obstacles;

marking and ranging, in a subsequent step, the identified regions using a distance-measuring sensor with respect to their distance from the observer; and

subsequently type classifying the identified regions using a type classifier.

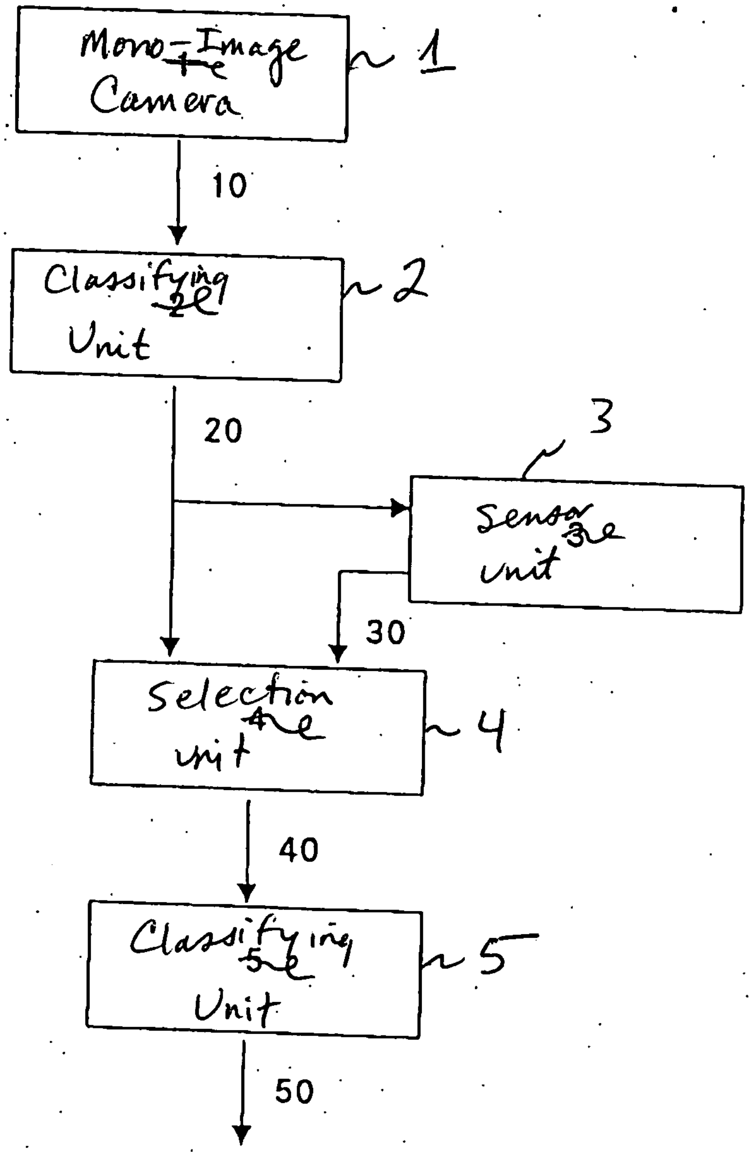
Mono-Image Camera
1
10
Classifying Unit
2
20
3
Sensor unit
30
Selection unit
4
40
Classifying Unit
5
50

FIGURE 1